

What Is Claimed Is:

- Sub #2
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1. An apparatus for dynamic power control of a processor based on a thermal condition, comprising:
a sensor to measure a thermal characteristic of a processor with a clock frequency;
a circuit, responsive to the measured thermal characteristic satisfying a pre-determined threshold, to reduce the clock frequency of the processor.
2. The apparatus of claim 1, wherein the thermal characteristic includes temperature and rate of temperature change.
- 10 3. The apparatus of claim 1, wherein the circuit includes a frequency generator and a logic circuit.
4. The apparatus of claim 1, wherein the circuit reduces the clock frequency by less than fifty percent.
- 15 5. The apparatus of claim 1, wherein the circuit reduces the clock frequency by removing a pre-determined number of transitions from a signal producing the clock frequency.
6. The apparatus of claim 1, wherein the sensor and circuit produce a higher operating temperature for the processor.
- 20 7. A method for dynamic power control of a processor based on a thermal condition, comprising:
measuring a thermal characteristic of a processor with a clock frequency;
reducing the clock frequency in response to the measured thermal characteristic satisfying a pre-determined threshold.

entering a third state from the first state in response to a measured thermal characteristic of the processor satisfying a second pre-determined threshold where the third state waits for a measured thermal characteristic of the processor to satisfy a third pre-determined threshold to reduce the clock frequency for the processor;

remaining in the third state in response to a measured thermal characteristic of the processor failing to satisfy the third pre-determined threshold; and

entering the first state from the third state in response to a measured thermal characteristic failing to satisfy the second pre-determined threshold.

15. The method of claim 14, wherein the second pre-determined threshold is a temperature threshold, and the third pre-determined threshold is a rate of temperature change threshold.

16. The method of claim 14, further comprising:

entering the second state from the third state in response to a measured thermal characteristic of the processor satisfying the third pre-determined threshold;

remaining in the second state in response to a measured thermal characteristic of the processor satisfying the third pre-determined threshold; and

entering the third state from the second state in response to a measured thermal characteristic of the processor failing to satisfy the second pre-determined threshold.

17. The method of claim 16, wherein the second pre-determined threshold is a temperature threshold, and the third pre-determined threshold is a rate of temperature change threshold.